A

COMMENTARY

ON THE

TREATMENT

OF

RUPTURES.

A COMMENTARY ON THE PENTATEUCH OF RUPTURES.

A

COMMENTARY

ON THE

TREATMENT

OF

RUPTURES.

BY EDWARD GEOGHEGAN,

MEMBER OF THE ROYAL COLLEGE OF SURGEONS, HONORARY MEMBER OF THE ROYAL MEDICAL SOCIETY, EDINBURGH, AND OF THE PHYSICO CHIRURGICAL SOCIETY, DUBLIN.

LONDON:

PRINTED FOR SIR RICHARD PHILLIPS, BRIDGES-STREET, BLACK FRIARS, AND GILBERT AND HODGES, DUBLIN.

1810.

TO

SOLOMON RICHARDS, ESQ.

DEAR SIR,

I TAKE the liberty of dedicating the following pages to you, as well with a view of exciting your attention to the important subject of which they treat, as in testimony of respect for superior talents;—and in the reliance, that, if the principles which they inculcate shall be adopted by you, that they will, by every scientific surgeon.

I am, Dear Sir,

With great respect,

Your obedient

humble servant,

EDW. GEOGHEGAN.

March, 1810.

PREFACE.

I AM induced to publish the following observations, in the opinion that they afford an explanation, of the phenomena attendant on strangulated hernia, more satisfactory than any which has hitherto appeared, and that they lead to important improvements in the mode of treatment. In advancing opinions which are at variance with those of men deservedly distinguished in their profession, I reluctantly discharge a duty necessarily imposed on me, and arising

out of the investigation; I am not insensible that the abilities and great labour of those practitioners entitle their opinions to the most diffident suspicion and to the most respectful deference; but, when the object is to avert the stroke of death, impartial and explicit discussion must bear down every other consideration.

* In the year 1800, I published some observations on this disease, in the Medical and Physical Journal, vol. 4th, which were the result of experience in a few cases; further opportunities and much reflection having convinced me, of the validity of the opinions which I

* These have been transcribed into the Edinburgh practice of physic, Surgery and Midwifery, vol. 4th.

then advanced, I am desirous of entering into a more detailed investigation than the limited nature of a short letter admitted.

In the 5th vol. of the Medical and Physical Journal, Mr. Borret, surgeon, at Great Yarmouth, has animadverted on my letter in a way which inclines me to think that I did not write with the necessary precision.

In characterizing the description of hernia, to which my remarks were confined, the term *bubonocele** was inserted instead of *enterocele*, which I wrote, or

* Mr. Borret grounds his objections to the taxis in the way I advise it, in a great measure, on this mistake.

He also says that I am an advocate for unlimited procrastination of the operation, and that my quotation from Mr. Pott is not only inaccurate, but the application is erroneous.

intended to have written, in contradistinction to omental hernia; I am willing to place the mistake to my own account, rather than to that of the Editors, who are remarkable as well for their accuracy, as for their fairness and impartiality. It will appear, I presume, by the present publication, that this misname did not affect the general argument, that I am not an advocate for *unlimited procrastination* of the operation, and that my quotations are not *inaccurate nor erroneously applied*, and that the objections of that ingenious gentleman do not invalidate the theory or practice for which I contend.

In endeavouring to render my meaning as clear to others, as it is to myself,

and to avoid misconception, I fear, that I have incurred the imputation of prolixity and of needless repetition.—We know that it is customary with judges, when explaining the law to juries, in cases of life and death, to dwell with tediousness and frequent repitition, regardless of the punctilios of style; may it not be permitted him then, whom a similar consideration engages, to commit the like offence against the graces of composition.

So prevalent is hernia in every country and at every age, and under such opposite circumstances, that it is impossible to say, to what remote causes it ought properly to be attributed; almost every publication on the subject com-

municates something useful, but that of Mr. A. Cooper is particularly instructive on account of its judicious arrangement, correct anatomy, and the accuracy of its delineations;—and although I dissent from him in some points, I am impressed with a due sense of the value of his work.

So sudden and imminent is the danger attendant on strangulated hernia, that it peculiarly demands the most prompt and skilful assistance; and notwithstanding the ability with which it has been hitherto discussed, still doubt and difficulty embarrass its treatment, the effect, as well of a misconceived theory and of an ill adapted practice, as of the intricacy of the case. To establish

a correct pathology and a correspondent treatment are the objects of the present investigation.

When theory and practice are at variance, it is our duty to sacrifice the former; but to reconcile both should be our unceasing aim, as approaching the perfection of our art.

This subject forms a part of medical surgery which is of important interest. —To the study of our science in this respect, I cannot too earnestly urge the student, not only because it holds the mastery over operative surgery, and is more dignified, embracing considerations of an higher order, but, because it is more generally required. In every instance information and judgment in the ma-

nagement of diseases are indispensible, whilst the performance of operations is seldom necessary; I believe that capital operation is not required in every five hundredth patient, the neglect then of the former, and diligent attention bestowed on the latter, evince an insensibility to the duties of the profession, which tends to impede its improvement, and to diminish its benefits. On this head Mr. Abernethy's observations are of great value, and Doctor Kirkland's Inquiry into the State of Medical Surgery, and Mr. Pearson's Principles of Surgery deserve an attentive perusal, the last very appropriately says, "The surgeon who reduces his province to the performance of operations, and neglects

the more solid parts of his profession, may learn the art of mutilating his fellow creatures with ease and dexterity, but will never deserve to be treated as a good surgeon."

A

COMMENTARY

ON THE

TREATMENT

OF

STRANGULATED HERNIA.

IN the treatment of Strangulated Hernia, by operation, considerable improvements have lately taken place, but I am not satisfied, that, as to the means of relieving, which are preventives of operation, that much progress has been made. To accomplish the objects of surgical assistance, without having recourse to the knife, is anxiously sought by every judicious surgeon, and must prove the highest gratifi-

cation to the patient; and indeed, the disease in question has shared no small portion of attention in this respect, every writer and teacher having given it much consideration; however, I must confess that after a great deal of observation, and having revolved the subject most attentively in my mind, I am at a dead fault to account for the practice in some material points, as universally pursued. I particularly allude to the instructions which are given as to the manner of using the taxis, or returning the protruded parts by the hand.

The practice of ancient and modern surgeons is founded on the same principles, and expressed in pretty much the same terms, namely, that the hernia, is to be pushed back into the abdomen. Previously to the publication of Mr. Pott's work, directions on this head were given very carelesly.

Dr. Monro, sen. in the Edinburgh Medical Essays, says: "The surgeon gently pushes the viscera up with the fingers alternately applied to a small part of them at once." The words of the justly celebrated Pott, are: "The patient should be laid in a supine posture, with his trunk certainly as low, if not lower than his thighs; the thigh on the diseased side, should be so elevated as to contribute as much as possible to the relaxation of the abdominal aperture, and then the surgeon, grasping the lower part of the tumor, gently with his hand, in such a manner as to keep the testis from ascending, and the intestine from descending, must endeavour to procure the return of the latter through the ring, as it is vulgarly called, by gentle continued pressure toward that opening. If the case be a bubonocele, there will be no occasion for endeavouring to grasp

the tumor, but, by continued moderate pressure on it with the fingers, to endeavour the return of the piece of gut. This may serve as a general description of the method of performing this operation; but the exact manner of executing it is one of those manœuvres which can only be learned by observation and practice, and of which no verbal description can convey an adequate and perfect idea. Knowledge of the structure and situation of the parts will instruct any one how to go about it, and a little practice will soon make him adroit. "He says, the nearer the posture approaches to what is called standing on the head, the better, as it causes the whole packet to hang, as it were by the strangulated portion, and may therefore disengage it." In the femoral hernia the pressure ought to be made directly upwards, or a little towards the pubes."

Mr. Benjamin Bell says, " that when the tumor is in the groin, or in the forepart of the thigh, the patient ought to be so placed as to raise his thigh and legs considerably higher than his head and trunk, that is he should be placed almost perpendicularly on his head." He also mentions " placing the feet over the shoulders of another person, that the body may hang downwards, and in this posture causing him to be a good deal jolted about, as answering on some occasions, when other means had been tried in vain. In the inguinal or scrotal hernia, the pressure should be made obliquely upwards towards the ilium, so as to correspond as nearly as possible with the opening in the external oblique muscle. In femoral hernia, the pressure ought to be made directly upwards. When tumors of this nature are of considerable size, pressure, as we have here recommended,

is most conveniently made, by grasping the swelling with one hand from the bottom upwards, while with the fingers of the other hand, we endeavour to push forward the contents at the superior part of the tumor. Some surgeons in pushing forward the intestine employ the fingers of both hands at the upper part of the tumor; but the same purpose is answered equally well with the index and middle finger of one hand, while the other is employed to great advantage in pressing the under part of the tumor upwards, so as to co-operate in this manner in the reduction of the parts."

Mr. A. Cooper says, "The surgeon embracing the tumor with his right hand, he presses it towards the abdominal ring, so as to keep it from receding, then applying the finger and thumb of his left hand upon the neck of the tumor, at the part where it enters the abdomen, he gent-

ly presses it from side to side, thus endeavouring to get a small portion of it within the abdomen. If any part can be forced up, the rest generally follows without difficulty, again the force of the pressure should be directed towards the anterior and superior spinous process of the ilium in the course which the tumor takes obliquely upwards, and not towards the abdomen immediately behind the abdominal ring.

In treating of the inguinal hernia on the inner side the epigastic artery, he says, " the attempt at reduction should be directed differently to the usual mode. The tumor is, as before, to be grasped with one hand, but the fingers of the other are to be placed at the abdominal ring to *knead* the hernia at that part, directing the pressure upwards and inwards instead of upwards

and outwards to return the tumor into the abdomen.

" In crural hernia, the reduction by the taxis is much more difficult than in the other species, and that in consequence of the smallness of the opening, through which the intestine descends, and the direction which it takes, a different management is required in this operation. The body to be placed in the recumbent position, the thigh bent, and the knee thrown inwards, the surgeon is to place himself over the body of the patient, and putting both his thumbs on the surface of the tumor, he is to press gently directly downwards, as if endeavouring to press the tumor into the thigh, rather than towards the abdomen, which pressure is to be kept up some time till the surface of the tumor is brought even with the line of the crural arch, the hernia may then be pressed towards the abdomen and will return into

that cavity. I am convinced that much of the difficulty found in returning this species of hernia often depends on the improper direction given to the pressure, for if the tumor is pressed first towards the abdomen, it turns over the crural arch instead of passing under it, and then the utmost degree of force which can be applied will only endanger the bursting of the intestine, but cannot contribute to its reduction."

Mr. Lawrence says " we usually grasp the tumor with one hand, while the other is placed at the aperture, where it may be employed in facilitating the entrance of the parts, and in keeping up those which have been already returned; success will often be obtained by exerting a general pressure on the whole surface of the swelling, in which method both hands must be employed, in order to subject the

entire tumor to the action of the force. The pressure should be exerted according to the course in which the parts have been protruded: thus the contents of a bubonocele pass obliquely downwards and inwards; those of a femoral rupture downwards and then forwards; yet we should not confine ourselves entiely to such a kind of pressure as the course of the hernia would suggest, but in failure of those attempts make other trials, in different directions. The following manœuvre will sometimes succeed in bubonocele or scrotal hernia, after the more ordinary methods have failed, particularly in cases where the strangulation seems to have been caused by an accumulation of fœcal matter. Let the surgeon embrace the neck of the swelling close to the tendon, with the finger and thumb of one hand, and carry them downwards, with a moderate pressure, so

as to remove the contents from the portion next to the ring; this will reduce the size of that part, which he may then attempt to pass into the ring with the other hand. The surgeon should place himself in a situation which he can occupy without inconvenience for a considerable time, since he must persist in his attempts for an hour, in some cases, before he gives up the expectation of success; and it often happens that by perseverance in trying various positions and modes of pressure, herniæ are ultimately replaced, which did not yield at all to the first attempts. In femoral hernia the pressure must first be exerted downwards and backwards, to push the swelling off pouparts ligament; and if the parts recede under the application of the force in this direction, it must be continued upwards, in order to make them pass under the crural arch; it must be very obvious from the description of the course

in which the rupture descends, that no advantage whatever can be obtained by pushing the swelling upwards in the first instance."

When I consider the talents and the extensive opportunities which those writers possessed, it is not without anxiety that I contest their opinions; but experience has abundantly shewn that they are ineffectual in practice, and I feel a conviction, that they are unsupported by theory. I have given their own words, that their full meaning may the more clearly appear, and that my inference may be the more readily understood.

The first objects for our consideration are the structure of the parts concerned, the phenomena which the disease exhibit, and the pathology which may be fairly induced. When hernia has taken place in the groin, it has passed through two aper-

tures, that which is next the abdomen is formed by the tendon of the transversalis and internal oblique muscles and a fascia that lines the transversalis; the external aperture is formed by a separation of the tendinous fibres of the external oblique muscle, they are filled up by the spermatic cord in males, and by the round ligament of the uterus in females; they form an oblique canal, which, in old ruptures, becomes straight, or nearly so. In crural hernia, it passes through a small aperture, in a tendon formed for the transmission of the femoral vessels; during a length of time it slips into and out of the abdomen uninterruptedly, a circumstance to which I would particularly direct the attention; suddenly, after any great exertion of the body, such as lifting a weight, coughing, sneezing, &c. or external injury, it refuses to return into the abdomen, on examina-

tion it appears tumefied, tense and inflamed, accompanied with excessive pain, a derangement of the functions of the viscera and universal disturbance, the inflammation rapidly encreases, the distension is prevented by the rigidity of the tendinous aperture, or by the neck of the sac which contains the intestine, hence strangulation. From this view it appears that the aperture is in its natural state, but that the hernia is not—the natural state of the former cannot be altered suddenly, so as to encrease or lessen its diameter, that of the latter is highly susceptible of immediate alteration and of encreased dimensions; it also appears that it is not the mere protrusion of the intestine which constitutes the disease, it is the inflammation and enlargement of it, and that state being sometimes produced by *external injury*, is entitled to particular consideration, inasmuch as it shews that

the production of the disease is wholly independent of the aperture, and that whatever inflames the part, is a sufficient cause. When it arises from bodily exertion, it is easy to conceive, that in the violent expulsion of a piece of intestine, striking against the tense borders of two small apertures, through which it passed, that it must be irritated and inflamed, and that as they are already filled up, so as not to admit of further distension, these delicate parts are mashed together, hence the intestinal tube, compressed by the sac, cord and tendon, is rendered impervious; thus putrid air and fluid fæces are pent up, which from their extreme pungency, and the distension they occasion, aggravate every symptom. In this manner I have always thought that the phenomena of the disease could be satisfactorily accounted for.

The opinion entertained by so many authorities of respectability, that the disease originates in the apertures, that they are active, strikes me with astonishment; they surely cannot have borne in their recollection that these parts are tendons, and cannot contract or dilate; that from structure, they must be passive, and that their allotted duties in the machine, require that they should be so. Haller, in his Pathological Observations, says, "that it is not easily understood, how in incarcerated hernia, strangulation of the intestine comes to be produced; for it is certain that tendon is neither irritable nor contractile, and therefore these fibres can only constrict the intestines by resisting the return of the fæces."

The first thing which presents itself on examination of these parts is an unyielding aperture, the bore of which is from

half an inch to two inches, embracing the neck of a tubular tumor, the base of which is usually several inches in circumference; thus it is shut up, and so completely obstructed, that its bulk cannot be diminished, unless by emptying it of its contents. To remedy this state, the indications of cure laid down by the authors quoted are, to replace this tumefied part as soon as possible, and to free it from stricture; to accomplish which, the sum of all their directions is, to push it back through the aperture; and we are deliberately instructed to press it in various ways, and in different directions, and with certain degrees of force, until its return shall have been effected.

With respect to the advice given by Dr. Monro, senior, "that the viscera should be pushed up with the fingers, applied alternately, to a small part of them at

once," it could not be executed, because the viscera being enclosed in a tense sac, could not be commanded by the fingers, in separate portions as directed, and the hernia is immoveably fixed at the strictured point.

Mr. Pott and Mr. B. Bell have exactly the same views, and propose nearly the same means, to return the hernia through the aperture by force. The pressure of the tumor from the bottom upwards, as directed by the latter, is calculated to prevent its being returned, by producing an accumulation of the contents, and of the volume superiorly, like a cone inverted, it presents the base instead of the apex to the aperture; and as to placing the patient almost perpendicularly on his head, and jolting him about, whilst part of his bowels were *ex situ* and inflamed, it is not entitled to a serious refutation. Mr. A. Cooper gives similar di-

rections, even he speaks of pressing from side to side to get a small portion of the tumor within the abdomen, and that the rest will follow. He lays particular stress upon the *direction* which is to be given to the pressure as a point of the utmost importance; in which opinion Mr. Lawrence coincides.

To recur to the proposition, that the aperture is not dilatable, and that the dimensions of the hernia exceed it, it must appear at a glance, to the most dull, that the latter cannot be passed through the former by any exertion of force, or by any manœuvre, unless that an alteration is effected in either—it is physically impossible. Yet the whole bearing and drift of all those instructions, and taking them conjointly with the indication which they are intended to fulfil, are to replace the hernia en masse and per force, with the

only qualification that the pressure shall be gentle and continued ;* in the application of force we know, that to render it effectual, it must be greater than the resistance, which in this case is afforded by tense fasciæ, and against which it must be directed ; the body impelled is a portion of intestine, and sometimes omentum, a part remarkable for its soft and unresisting nature—as the force of any body is composed of the forces of all its parts, it is impossible to conceive how parts of such structure as those mentioned could be impressed by force, and wielded so as to overcome the resistance opposed by

* Pott says, " from what I have seen I am much inclined to believe, that when the parts are very painful to the touch, and the scrotum large, and much upon the stress, more harm is generally done by the manual attempts for reduction, than good. In this state the great distension of the intestine renders it very incompressible, and very little likely to be returned through the tendinous aperture by mere *force,* for such it is in whatever degree it be used."

rigid tendons. With respect to the *direction* which is to be given to the pressure, and which Mr. Cooper insists on as so very material, I should think it impossible that any impulse, of which a tumor so composed was susceptible, could be communicated, so that it would take two different courses and preserve any force. When its yielding nature and the *gentleness* of the pressure are considered, the force must be feeble indeed, if not entirely spent, when it had arrived at the end of the first direction; and were even violent pressure admissible, surely after the protruded part had formed an angle, the vis a tergo would be lost, where the new line commenced, and all beyond the reach of the fingers would remain uninfluenced by the pressure. In femoral hernia, it is inconceivable how, after having pressed it backwards, we could command it in a

direction upwards, and then through the aperture.

On the whole, that the hernia might be replaced by the means recommended. it should be managed as a wedge, and in that case, the pressure ought to be measured by the powers opposing, or not attempted at all and it is only a firm resisting solid that could be guided in different directions; nothing can be more inconsistent than to talk of gentle pressure, where the object is to overcome resistance, the degree must be always left to the discretion of him who applies it.

Mr. Cooper in treating of the reduction of the inguinal hernia, on the inner side the epigastic artery, "says, that the fingers should be placed at the ring to *knead* the hernia at that part." The explanation of the term *knead*, is to beat or mingle any stuff or substance; the same expression is used by other authors, and in some publi-

cations which are designed for the instruction of patients; it is usually applied to the working of dough or paste, and I should very much dread its being practiced by unskilful hands on inflamed viscera,—it is, in a word, to beat and bruise them together, with the knuckles, and against the tense border of the aperture, and although the *kneading* would be conducted by a surgeon of Mr. Cooper's abilities, with delicacy and address, still I contend that it is objectionable on principle, and could not be productive of any advantage; the protruded parts are bound as if by a cord drawn around them, inflamed and almost consolidated together; how is it possible then that in this fixed state, they could be pushed up portion after portion, as recommend by Mr. C.? In some instances, the depth of the integuments, in all, the skin and cellular substance would prevent the fingers getting

under the aperture, so as to detach the part which was girt; were it moveable at the ring it must be immoveable at the inner opening, or at the mouth of the sac in whichsoever case, a separate portion of the hernia could not be pushed into the cavity, and were it moveable in all points, and not, as it were, consolidated together, there would be no stricture except in the sac; it is the extreme of error, and wholly inconsistent with the nature of the disease to suppose that it could be moved in detached portions; nor would any thing be gained by getting up a part, as the mass must remain outside until emptied of its contents, and its bulk lessened; the yielding of the parts under the fingers, but outside the aperture, conveys the impression as if they had receded.

I am assured that every practitioner, bearing firmly in his recollection, the state

of the parts and the nature of the disease, will be satisfied of the validity of the opinions which I have advanced, and that in contesting those of Mr. A. Cooper, I have interpreted them according to their true and obvious meaning.

Although in the application of force, it is always recommended that it shall be gentle, still the contrary is very much practiced, and instances of success imputed to the increased degree are recorded. *

* Mr. Ward, surgeon to the Manchester infirmary, gives some cases in the 4th volume of the Medical and Physical Journal, of success from the inverted position, in which the patient and an assistant were placed back to back, the legs of the former being held over the shoulders of the latter, whilst the head and shoulders were supported and inclined forwards to relax the abdominal muscles; he advises the taxis and this position, and is an advocate for a good deal of pressure; he quotes passages from Pott and Bell, in which they recommend that the pressure should be of the most gentle kind, and by no means to create pain, from which he dissents,

When the peculiarly delicate texture of the intestines and their increased sensibility in an inflamed state are considered, the effects of impulsion and consequent

and observes, that whoever regulates his practice by them will rarely succeed in reducing those hernia that are accompanied by a considerable degree of stricture." In one case he succeeded, his patient being in this inverted position, and by exerting a greater degree of pressure than he had ever done before the resistance could be overcome. To the same causes he attributes his success in, I think, four cases: a man, named William Bellows, laboured under strangulated hernia, at three different periods; twice he was relieved by pressure; on the third descent the same treatment was tried, assisted by warm baths and other means, and after repeated attempts it proved unsuccessful, at length he was laid in bed, sickness came on, and during the continuance of the sickness it went up. Here is a strangulated hernia supposed to have yielded to a particular kind of treatment on two occasions, yet on a third occasion it is not affected by it, and after it has been abandoned as useless, the end is accomplished without any assistance. Surely it is as reasonable that we should be instructed by this last occurrence as by the two former.

re-action, some time continued, surely with even the gentlest force it is impossible that they could escape being contused, and that the symptons should not be aggravated; but from great force what have we not to dread; are not rupture of the intestine or mortification effects much more reasonably to be expected, than that the resistance afforded by tense fasciæ should be subdued, and two apertures dilated by the pressure of such a substance as a piece of gut. When the stricture is formed by the mouth of the sac or by septa formed in it, an occurrence of which the surgeon is uninformed when performing the taxis, no such intention as overcoming the resistance can be had in view, because it exists in the impelled body itself, and the exertion of force, gentle or violent, or in any direction, can effect no purpose, and were it practicable to return

the hernia *en masse*, under such circumstances, the strangulation would not be remedied by that means, because the stricture would still remain.

Mr. Cooper thinks that stricture by the sac is a rare occurrence, and that that which is formed by the inner opening is generally mistaken for it, but we have many cases recorded, in which the stricture was below the ring; some are mentioned by Mr. Hey, and that situation puts it beyond dispute. Arnaud gives instances of stricture by the sac below the ring, and also of the hernia having been pushed up, and to all appearance reduced without an abatement of the symptoms—a case is mentioned by Mr. Hey, in which the stricture was formed by a preternatural membraneous cord, like whip cord, which adhered by its extremities to the opposite sides of the hernial sac and com-

pletely surrounded the intestine, also a case of double hernia in which the aperture was greatly enlarged, and after having divided it he found great difficulty in reducing the intestine on account of the increased thickness of its coats.

Callisen gives a case in which the operation was performed and the hernia reduced, but the termination was fatal, in consequence of a portion of the intestine being strangulated within another hernial tumor. We have a case in Lawrence, of a patient in St. Bartholomew's hospital, who had a soft and somewhat elastic tumor of the size of a pigeon's egg, which bore pressure without causing pain, the ring of the external oblique was perfectly free from tension. Strong purgatives and tobacco glysters having failed in procuring any relief, the operation was performed on the seventh day from the strangulation, the intestine ap-

peared to be strangulated in the internal aperture; the stricture there was divided and the intestine returned; on the following evening, the patient died. Within the abdomen, and just behind the ring there was a small piece of intestine perfectly black and gangræneous, which had been strangulated by a præternatural band of adhesion, extending from the peritoneum close to the ring, to the mesentery."*

* This case has been brought forward by Mr. Lawrence, for the purpose of shewing that strangulation may proceed to the complete mortification of the intestine, without producing any of those symptoms, which are ordinarily described as attending such a termination, and to shew the danger of cutting upwards and inwards, and to prove that the epigastric artery may be divided without hæmorrhage ensuing from the division; it is brought forward by me to shew that the ring being free from stricture, the internal aperture being divided, the operation performed with safety, and the indication of returning the intestine fulfilled is insufficient to cure the disease, whilst the intestine is obstructed by any thing.

What a striking absurdity would it not have been to have applied, nay to have succeeded, in the application of the usual pressure in any of the cases mentioned, to have fulfilled what we are told is the first indication, namely the replacement of the hernia; its replacement, were it practicable, would not only not remove the strangulation but must insure a fatal termination, by placing it beyond the reach of operation.

On consulting every writer on this disease, and the experience of every practitioner, we find numerous instances of the strangulation having been removed, by means bearing no relation whatever to the application of force, such as the tabacco glyster, the application of cold, &c. sometimes it yields spontaneously. Among the cases related by Mr. Ward, in favor of the application of pressure, that of William

Bellowes, is, in a peculiar manner instructive. It is stated that on two occasions his hernia had been returned by pressure, whilst he was placed in the inverted position, but that on the third occasion, the same treatment, assisted by powerful auxiliaries, had proved ineffectual; it was repeated after an interval of a few hours without success; he was then laid in bed, and the protruded part, which could not have been *forced* through the aperture, passed through of itself, unassisted. Now surely this case comes strongly in proof of the inapplicableness of pressure, by shewing that where it had failed, and where the resistance appeared to have required it in an increased degree, success was obtained without it, and should encourage us, rather to lay our patient quietly on his bed, and to try whether his strangulation would not subside of itself than to

hang him by the heels, exciting irregular actions of the muscles, and disturbing the order of the animal economy; the one situation is favourable to a relaxed and composed state of the body, the other to that which is tense and distorted. When a bone has been displaced at its extremity or by the fracture of its cylinder, it can be restored to its situation only by force, and success will depend more upon its judicious management than upon the degree in which it shall be exerted.

It is supposed by some, that when hernia is in the scrotum it may be compressed by the contraction of the cremaster muscle, and also that the action of the intestine itself, wherever it may have protruded, assists its being reduced. This rationale makes against the argument, that a great degree of pressure is necessary, in as much as, it presumes, that the gentlest

possible to be conceived answers the same purpose, also that the resistance is of the feeblest kind or none at all, and warrants the conclusion that the unassisted powers of the parts were equal to the removal of the disease, of which the case of William Bellowes affords as satisfactory an example, as it does of the inefficacy of the practice which it was brought forward to support.

This case is by no means a solitary one, many such have occurred to almost every surgeon. A disease threatening the immediate extinction of life resists a practice which is dangerous on principle, and is removed spontaneously, or by means which are attended with little or no danger. Are we to draw no inferences from these lessons of instruction, and blindly to suffer such practical facts to pass away unheeded, yet in the career of investigation—or should we not pause to examine into phenomena so interesting?

The circumstances of the most violent symptoms yielding, and the hernia returning into the abdomen without external assistance, particularly claim attention, could we account satisfactorily how these happen, would furnish us with valuable instructions in the regulation of our treatment; indeed the mere events convey a great deal, and should incline us to doubt the propriety of a practice which is so hazardous and liable to abuse, and prima facie, so ill adapted. The explanation which strikes me as arising out of these facts is, that the removal of the tumefaction effects that of the strangulation, which (all observe) * instantly, to take place, on the extrication of the imprisoned air, and sometimes fæcal matter. The intestine in a state of

* It is observed by every authority that the return of intestinal hernia is always attended with a gugling noise, yet no practical induction has ever been drawn from so striking

distension must re-act upon its contents, which under the influence of unremitted pressure are forced against the strictured point, this is shut up by inflamation, the absence of which, is therefore indispensible to the air effecting its passage. These opinions meet powerful support in two acknowledged facts, the one that a guggling noise always precedes the reduction of the hernia, the other, that a state of languor almost to lifelessness is particularly favourable to success; it is of no moment whether or not the hernia returns, its bulk being lessened, is sufficient. I have often observed that it remained ex situ, some time after the symptoms had disappeared. In irreducible hernia, which is sometimes

a fact, although it evinces unequivocally the escape of the air and the effect—the removal of the strangulation.

When we consider the acrimoniousness of the air which is expelled from tho intestines, its stimulating effects when confined are easily conceived, and when reiterated impulsion by the hand is added, what have we not to dread.

the subject of this disease, the replacement is out of the question; yet the strangulation may be removed, hence all irritation, such as the taxis, and a distorted state of the body tending to keep up, and extend the inflammation, must prevent the intestinal tube becoming pervious, and of course the bulk of the hernia being diminished, which is, the sine qua non, of success; whereas the absence of every thing irritating, a tranquil state of the body and a recumbent position conduce materially to the abatement of the inflammation and to that passive condition of the part which will admit of the pent up air forcing its way through the obstructed spot; during languor all action and tension are suspended, and we find that in that state, the disease is very generally removed; in this way I have always thought that the successful termination could be satisfactorily explained.

On the whole, so far as the usual operation by the taxis, as a means of removing strangulated hernia, I feel the fullest conviction that the principle is erroneous, and that the practice is injudicious and dangerous in the extreme; in proof of which, the observations I have advanced are by no means hypothetical, but are demonstrable on inspection of the parts and of the disease—the principal points are anatomical facts, and the operation of mechanical powers, and I presume that they are incontrovertible.

From what has been stated, it appears that the indication of cure laid down generally, is not warranted by the nature of the disease, nor of the treatment, namely, to return the hernia through the apertures by pressure with the hands, because, as mentioned before, it is not the situation of the intestine, it is the enlargement of it,

which occasions the symptoms, and that state should, in the first instance, forbid the attempt, on account of its obvious impracticability. The only indication of which it admits is, to reduce the hernia to the size of which it had been previously, to its having been strangulated. In furtherance of this intention, all our efforts should be directed to the removal of the air and of the inflammation, and the Surgeon should discharge from his mind every idea of pushing back the hernia.

The consideration of the means which have been found most frequently successful, gives strength to the rationale, for which I contend; I allude to cold applications and to the tobacco glyster; upwards of eighty years ago, the former were strongly recommended by Belloste, who had much experience of their success; my attention was particularly directed to them by an Essay in

Wilmer's Cases in Surgery, which gives a correct and judicious representation of the disease; and I have known them to have proved effectual in a great number of instances. Mr. Hey says, that he has found them often succeed, but oftener fail; in one case he tried them a length of time conjoined with the taxis, and the patient being suspended by the legs over the shoulders of an assistant, the tobacco smoke afterwards succeeded. With deference to the superior talents of this gentleman, I must observe, that they had not a fair trial in this instance, because the taxis and the distortion of the body must have counteracted them, by keeping up the irritable and inflamed state locally and generally. Mr. Lawrence thinks them among the most powerful means of treating strangulated hernia, but observes that it is difficult to explain the manner in which they ope-

rate. Although I am not fond of indulging in conjecture, still when facts and experiments furnish ground for opinion, they ought to be attended to. We know that a bladder filled with rarefied air will diminish in bulk, if immersed in a cold medium, and that it will expand on being immersed in that which is warm;* this is sufficient to shew what cold applications are capable of effecting, and is all that is necessary in proof of their utility. Cold by propelling the blood from the surface, must lessen the vascular distension; it also induces a shrinking of the entire body, "Sanguis presentem horrorem metuens ad partes maxime Calidas concurrit."—Hippocrates, and a torpidness attends the

* Doctor Huxham, in the Philosophical Transactions, gives a case in which the hernia measured 28 inches, which distension he imputed to warm fomentations rarefying the air.

constant application, which by taking off the resistance, may admit the escape of the air, which, under the influence of compression by the coats of the intestine and condensation by the cold, struggles to be free; these surely are effects particularly to be desired, when our aim is to diminish the bulk of the hernia.

Tobacco glyster has been used with great advantage, and is remarkably efficacious; its effects are the suspension of all action, which implies the absence of inflammation and of resistance, and leads to the same consequences locally as the application of cold—a state of languor has ever been found favourable to the removal of strangulation, and was supposed to have proved so by the removal of spasm by some, and by relaxation of the apertures by all; herniæ of twelve inches in circumference, have often suddenly yield-

ed during languor; to suppose that an aperture of one or two inches, and in a tendon too, could dilate twelve inches, would be absurd in the extreme. Heister tells, that he never yet had occasion to use the knife, the tobacco having always succeeded with him; indeed it has so often proved successful, that the operation ought never to be performed until after it had a fair trial.

Bleeding had *been long* in as general use in this disease as in pleurisy, and I should think with equal reason, that it was occasionally contraindicated in both, I presume could not be fairly urged as an argument against it on principle; yet that surgeons of Mr. Wilmer and Mr. Alanson's experience and abilities should discard it as not adapted to the case, excites my surprise and regret. The former says, that, " in these cases the death of

he patient can only be explained by the inverted peristaltic motion immediately lessening the powers of life, and that large and repeated bleeding must *increase the debility* and do much mischief, he thinks that bleeding is extremely unfavourable to the patient's recovery, should the operation for reducing the hernia be afterwards performed; and after declaring that most of the patients that are brought into public hospitals die after this operation, he seems to attribute this want of success to their having been bled copiously."

Mr. Alanson of Liverpool coincides with Mr. Wilmer in his opinion of the inutility of bleeding, in this disease. He tells us, "that bleeding ad deliquium had been the constant practice at Liverpool, and

* I take these quotations from Mr. Hey, not having been able to procure Mr. Wilmer or Mr. Alanson's works.

adds, " as soon as the deliquium happened, the taxis was tried during that stage; but I never saw this method successful, nor do I think bleeding ever of the smallest service in forwarding reduction." With respect to the observation, that the death of the patient can only be explained by the inverted peristallic motion immediately lessening the powers of life, I must dissent, because we have abundant experience that hernia will remain several days, nay, weeks strangulated, and with this inverted peristaltic motion in a violent degree, and this too in these subjects in whom the powers of life are weakest, and I believe that it is an accredited fact, that in debilitated and old persons, the disease is less rapid in its termination, and less dangerous than in the robust, and that an early fatal termination happens much more frequently to those in whom the

powers of life are most strong. Violent inflammation of the contents of any of the cavities often prove fatal very soon, and extravasation, and sometimes mortification account for the event, and when the disease is in the abdominal viscera, much more satisfactorily, than the inverted peristallic motion lessening the powers of life. I also dissent from the opinion, that bleeding is unfavourable to recovery after operation, and that it is the cause of death in most patients who are brought into hospitals, because I know from experience that those subjects who have been debilitated by disease, recover and derive benefit from operation in all cases, much more certainly than those who are in high health, when it is performed.

It has ever been the practice with the French surgeons to bleed, purge, and use warm baths, and a strict antiphlogistic

diet, as preparation for almost any operation, and the practice is persevered in from long experience of its advantages.

The want of success among hospital patients, I would rather attribute to the circumstance of the disease being aggravated by the injudicous manner of handling the parts, and to the effects of disturbance in the conveyance.

When a person is attacked with strangulated hernia, he endeavours some time to reduce it with his own hands; the assistance which he receives in the first instance is seldom from a competent person, injudicious efforts are too frequently used to replace the parts, he is afterwards conveyed, perhaps some distance, to the hospital, where, as the case is important, all the surgeons and pupils, who can be brought together, attend, every one of whom (it often happens) in his turn does

his utmost to fulfill the grand intention, namely to push back the hernia into the abdomen, and it is reasonable to expect that the force will be exerted by most of these gentlemen, in proportion to the resistance, and I must say that gentle pressure with such an indication in view is absurd in the extreme; the intention and practice being once admitted, most practioners will, and ought to use force accordingly, and he who would exert the full measure of his strength pushing against this inflamed and inflated tumor would be supported by the authority of every practitioner who inculcates that the intention of pressure is to replace the hernia, by overcoming the resistance.

It is easy to conceive that a patient whose body had undergone so much fatigue, and his bowels so much bruising, should have a bad chance of recovering.

and also that he should be ill fitted to bear a tedious dissection, and affords by no means a fair case, from which to deduce a rule of practice; to similar causes I am disposed to impute the want of success, in the cases which fell under Mr. Alanson's observation; and whilst the taxis is performed in the manner which is universally taught, it will bring every accompanying means into discredit.

The experience of Pott and Bell, in these countries, Richter and Callisen, on the Continent, is decidedly in favour of bleeding, and I am of opinion, that the reasons which have been advanced against it by Mr. Wilmer and Mr. Alanson are far from being conclusive. Mr. Hey and Lawrence very judiciously observe that sometimes it will prove useful, and at other times not so, the latter thinks the former unfavourable to it, because he says; "My own experi-

ence leads me to concur so far with Mr. Wilmer and Mr. Alanson, as to declare that bleeding has generally failed to procure a reduction of the strangulated intestine, though I am persuaded that in many cases it may be used with advantage." I do not think that this sentence warrants us altogether in concluding that he is against it; however it is not so satisfactory as I would have expected, from that accurate observer.—Hernia is a local disease, bleeding a general remedy, and it is not to be expected that the latter will remove the former, although it may materially conduce to it.

Mr. Lawrence observes that, "The degree in which any particular mode of treatment can contribute to liberate the contents of a strangulated hernia from stricture, is the fair criterion by which its merits can be estimated.

"Venesection cannot enlarge the opening through which the hernial contents have descended; it cannot diminish the bulk of the prolapsed parts; nor has it the power of exciting any action of the viscera which might extricate them from the stricture."

The correctness of these observations appears to me, to be rather questionable.—When a bone is displaced from fracture or luxation, the object which is desired is to restore it to its situation, should this be prevented by high inflammation, bleeding will be necessary, although it shall not contribute to liberate the end of the bone, should it be confined by stricture. When the cranium has been beaten in upon the brain, profuse bleeding is the remedy, yet it will not raise the depressed bone nor contribute to it even in a remote degree. Disease furnishes abundant examples which go to invalidate such positions,

to admit them, would be to strip the healing art of the entire list of juvantia.

I insist on bleeding, not with a view to its liberating the hernia from stricture, or enlarging the opening, diminishing the bulk, or exciting any action of the viscera: No, but because, in combining all the circumstances attendant on the disease, immediately and remotely it, appears on principle to be strongly indicated, and required by all the phenomena which it exhibits, in the living, and in the dead subject. The disease is inflammation of a part of the contents of the abdomen suddenly induced when the patient is in health; if its progress is not checked it rapidly extends and terminates in mortification; in all subjects which have been examined after death, extensive inflammation has been invariably found; is it not an object to abate the violence of the

vascular action in such cases, and on what means can we rely for preventing the spreading of the inflammation but on bleeding; the objection that *it cannot excite any action of the viscera which might extricate them from stricture* has no foundation whatever; because to lessen action is what is desired, and it has the power of effecting that. The supposition that a power could be imparted to the intestines to force a part of themselves through an hole or a noose, by which it was bound, in consequence of being too large, is at variance with every pathological law, and every notion of the animal economy, which have been hitherto received.

In cases of inflammation of any viscus, accompanied with excessive pain, and constipated bowels arising from external violence, I believe that there is no practitioner who would hesitate at bleeding;

the diseases are essentially the same; with respect to danger from its debilitating effects, this is to be considered relatively. We know that a person who has been severely beaten, or who has suffered general concussion from a fall, shall suffer debility in the extreme, and after having been plentifully blooded shall regain his powers; there is a wide difference between that debility which is induced by fatigue, pain and local mischief, and that which succeeds to judicious evacuations, accompanied with a state of composure, and no irritation, the one produces its effects by that active violence which destroys, the other, without inflicting any injury.

Whilst I contend that bleeding is entitled to the first place among the juvantia, it is not to be understood that I am an advocate for its indiscriminate use, or that I think large bleedings always advisable; no; the

quantity should be relative, but some should be taken in almost every case, if the strangulation did not yield early.

As to the opinions of Mr. Hey, it is clear on the whole that he is favourable to the practice on principle, and that he is merely against its abuse, and having told us, that he had always found inflammation and gangrene after death, at a considerable distance from the part which had been strangulated, and having quoted Warner and Ledran, in further proof of the intensity of the inflammation, his bias can admit of no doubt.

Mr. Lawrence says "that the weight of Mr. Cooper's authority has been added on the same side with Mr. Wilmer and Mr. Alanson, and refers us to page 24, on the Anatomy, &c. of Inguinal Hernia, this is certainly a mistake, which it is very material should be corrected, as the cha-

racter of that respectable surgeon must have great influence, and Mr. Lawrence's work may be read by those who may not see Mr. Cooper's, the latter not being so portable, and being expensive. His words are, " If a fair trial of the plan, which I have mentioned should not prove successful, other means should be resorted to, one of them is the drawing off blood; the object of which is first by the general languor which it occasions to produce a relaxation of the strictured part, and next to prevent the local inflammation running so high as to occasion mortification which would render the case fatal, though the protruded parts were returned. The quantity from fourteen to twenty ounces, or according to the strength of the patient's constitution, so much should be taken away as to bring on a degree of faintness, in which state of general relaxation, the

attempts at reduction should be repeated." These directions are unequivocally in favour of bleeding, and on the opposite side to Mr. Wilmer and Mr. Alanson.

Purgatives—I am of opinion that purgatives are improper, and that they are calculated to increase the mischief, should they pass into the intestines, but when the stomach rejects every thing, even the mildest fluid, surely whatever is acrid or nauseous is forbidden in the first instance. In all cases of inflammation of the bowels I am inclined to condemn the practice of giving purging medicines in larger doses than what have been usually found to answer, because constipation is not the disease, but the effect of inflammation, and it is obvious that the accumulation of a quantity of stimulating medicine must aggravate that state, and thus prevent the purgative effect. The rule of practice

should be to remove the disease upon which the constipation depended, for which purpose bleeding is the principal remedy.

I have often observed that six times the ordinary dose had failed of producing any effect, and immediately after bleeding, purging took place to excess, here it is manifest that the over dose produced its effects, because the disease had been removed, which prevented its operation in the first instance; I have bled patients, in whom constipation had continued several days, attended with excessive pain, and on whose stomachs between four and six ounces of castor oil, and more than a scruple of calomel had rested, and in whom a very reduced state of health, previously to the attack, would seem to forbid the practice; after having taken six ounces of blood, the effect was produced.

In very debilitated subjects, a small

quantity will suffice, and were even future mischief to be apprehended, still it is our duty to prevent a fatal termination in the first instance, for which purpose I consider bleeding, *the unicum remedium*, and I cannot too earnestly express my disapprobation of cordials, opium, &c." in such cases.

In those cases which were communicated to Mr. A. Cooper of strangulation of the intestine, within the abdomen, attended with constant vomiting, saline purgatives and opium were the medicines administered, and on examination after death, marks of high inflammation were discovered.

The learned Heberden, after about seventy years experience, advises bleeding as the chief remedy in inflammation of the bowels. Indeed diseases of the viscera belong to the physician's province, who ought to be the most competent to

treat them. However ruptures and wounds of the abdomen so particularly direct the surgeon's attention to them that it is his duty to be well acquainted with their nature and treatment.

Opium—Some surgeons on the continent, particularly Richter, entertaining a notion that the disease was spasmodic (which is to me incomprehensible,) advised opium. Mr. Hey has directed it in cases in which the patients were afflicted with spasms, and who had been previously debilitated, with advantage, that it might have proved useful in such instances. I can conceive, but that it is indicated generally, I very much doubt; although various opinions are entertained as to the general use of this medicine, it seems to be agreed that evacuations should precede its exhibition.

In strangulated hernia the patient is suddenly attacked in the fulness of health, all evacuations are suspended, and inflammation seizes on the abdominal viscera; under such circumstances I should think that a medicine which is known to induce constipation and to suspend the biliary secretions ought not to be given; but in debilitated subjects and when universal spasms existed, it might be advisable to allay the general irritation. Boerhave says, "*nullum se cognovisse remedium, quin solo tempestivo usu tale fieret.*"

Mr. Hey says, "that it will often remove for a time the pain, and vomiting usually attendant upon a strangulation, even when it proves ultimately inefficacious; in one instance that of John Handley, whose strangulation had resisted very active practice during two days, fifty drops of tincture of opium were given, which

procured a comfortable night, and the vomiting ceased for forty eight hours, during which time he took nine table spoonfuls of castor oil, and half a drachm of the extract, colocynth. comp. all which medicines were retained on his stomach; at the end of the fourth day from the commencement of the strangulation, the vomitting returned, accompanied with hiccough and tension of the abdomen, which had not subsisted before, his pulse small and frequent, the operation was performed, and a portion of omentum was found in the hernial sac, inveloping a small portion of intestine, which was of a dark brown colour, it terminated favourably.

In this case surely no substantial benefit was derived from the opiate, the retention of four ounces and an half of castor oil and the extract of colocynth answered no good purpose, and must have greatly ag-

gravated the distress, when the symptoms returned, as they did with increased violence, after the opiate effects had subsided; this case shews that opium has the power of suspending the symptoms, but it does not shew that it conduces to the removal of the disease; the state of the intestine proved that the operation had been too long delayed, which was a disadvantage arising from the opium, and as the object is to operate early as possible in the event of failing to remove the strangulation, I disapprove of a medicine which is calculated to lull us into a false security, and thus to protract the operation too long; after two days and nights, Handley's strangulation continued, and I cannot see the advantage of preventing the rejection of bilious and fæcal matter, when they had no passage downwards, I doubt but that their being retained together with the castor oil

and colocynth, in the inflamed bowels contributed to the aggravation of the symptoms. In the course of Mr. Hey's experience, it did not prove generally successful.

I have never known the warm bath to have been productive of any advantage, and I consider it calculated to do mischief, as it is proved that the tumefaction is increased by heat, and it is impossible that it could relax the apertures several inches, were we to admit that they were susceptible of being relaxed at all.

With the view of affording a satisfactory explanation of the practice which I think ought to be pursued, founded on the principles which I have endeavoured to establish, I shall describe my own manner of treating a case, and the order which I think ought to be followed, and which has succeeded under my management in, I

believe, more than thirty-six cases since the year 1796.

I place the patient in a recumbent position, with his shoulders a little raised to relax the trunk, but the pelvis not raised, as that would put the fasciæ on the stretch; the knees are to be drawn up; if the parts have not been irritated by handling them, or the body disturbed by jolting it about, or by any such roughness, I proceed directly to apply cloths, wet with cold water, expose the entire body naked to the air, the doors and windows being open, this practice usually succeeds within an hour,* if it does not, I surround the hernia with my hand or hands, at about its middle, in the way that I would grasp a

* In some cases where I could not immediately attend, I have directed that cold applications should be used until my arrival, and after an hour they informed me that they were seized with a shivering, that they heard the wind rush out of the hernia, and that they were instantly relieved.

gum elastic bottle, to press out its air or other contents, by gently approximating its sides, always holding in view that the tumor is to be emptied, and not *pushed up*,* and that a little assistance to the compressing force, which the coats of the intestine, (re-acting from distension) are exerting, by lessening its area, even in a small degree, the air will be strongly impelled, against the part of the tube which is closed, and through which it is only necessary that it should obtain exit, to effect our purpose. When it is small, as in femoral hernia, or in protrusions, which do not pass below the groin, or are elsewhere situated, it may be done with the fingers and thumb of one hand;—having applied the hands, I do not remove them for fifteen or twenty minutes, aware that reiterated impulses

* I never press the hernia in any direction, or at all towards the aperture.

irritate, and that the effects of compression are lost each time that it is intermitted.

Cases which have been long strangulated, and those which are accompanied with great pain and tension, are exceptions to this practice, so far as the employment of the hand, on the principle that the reaction of the intestine is at a pitch sufficient to propel the air through the coalesced tube, if its passage is possible, and that handling parts in such a state, would endanger mortification or rupture of them. My chief reliance in such is on bleeding, proportioning the quantity by nearly the following scale:

If the patient is young and robust, I take off sixteen ounces; if old or weakened by previous illness, from six to ten ounces, should even debility * take place,

* It is very material in this, indeed in every disease, to discriminate between that debility which is the effect of pain,

if attended with great pain, I repeat the bleeding after three hours; but if the pain yields, I omit it; all this time I apply nothing topically, except cold water, and strictly avoid all attempts with the hand.

I direct no medicine internally, and by these means I have succeeded in the instances before mentioned, and I am persuaded that they will scarcely ever fail, provided, that the taxis in the usual manner had not been practiced, and that such other exasperating causes, as putting the patient with his head to the ground and his heels up, and jolting him about, had been omitted.

Strangulated hernia, under this treatment, will in many cases, continue several days

anxiety, and restlessness, and that which is the effect of impaired health or of original constitution, in the former, bleeding is adviseable, in the latter it is generally improper to any extent.

without serious mischief, and in the event of operation being required, peritoneal inflammation will be provided against.

The tobacco glyster is the next remedy which I would advise;—in a robust subject in the proportion of one drachm to a pint of water, which I would repeat of double that strength, if the first produced no effect;—in an enfeebled person, half a drachm should be first tried.

In the event of failure in our efforts to remove the strangulation, the operation of enlarging the apertures by the knife must be had recourse to; the precise time at which we should lay aside all other means and commence this practice is not easily decided on.

In a young and full person fuffering great distress, I would not defer it longer than six or eight hours, particularly if the hernia had been much handled, and also if

bleeding had not been used, but where no mischief had been produced by external causes, and this evacuation had been premised, it might be deferred sixteen or twenty-four hours, always watching if the belly became sore to the touch, or much inflated, in which case to operate instantly. In an aged or debilitated subject it may be delayed longer; I have known it to continue in such, six, seven, and eight days, and afterwards to be removed without operation.

In the performance of the operation, I have only to remark that on laying the sac bare, the state of the ring should be examined, and if the hernia was bound by it, a small bistoury should be introduced, and a sufficient dilatation made to set that part free, then to endeavour by gentle pressure to empty the hernia, and should it become flacrid, the end is attained, but should

the tumefaction continue, the inner opening is to be examined with the finger, and incised, if it girts the hernia, which should be again pressed; both apertures being free, the strangulation can only be kept up by the sac forming the stricture, in which case it ought to be opened and the stricture divided. The propriety of this part of the operation has been much disputed, particularly by Dr. Monro, who introduces it in his work on the Bursæ Mucosæ, he advises that the sac should be returned unopened, and gives some instances of its success; however the contrary practice is generally pursued, and it is considered unsafe to omit opening it. Our object being to remove the strangulation, when that had been effected it could not be necessary to go further, but in failure of that event, our business would be left unfinished, were we to return the her-

nia in a lump, whilst the stricture was within itself, which the tumefied state of the hernia would at once decide, that being the effect of stricture, and this is the pivot upon which the point of practice should turn, namely, that as long as the hernia continues tumefied, stricture exists somewhere, and when the knife is employed, it will be ineffectually, if it does not completely remove the latter, wherever it is situated.

It sometimes occurs that a timid patient will not submit to the operation, and that the symptoms, &c. are such as to afford little hope of a favourable termination, were it performed; in such a case I would submit to the consideration of the profession, the propriety of opening the hernia at its inferior part to empty it, and thus take off the strangulation. Gooch recommends this practice, when it appears that

mortification has taken place, and gives some instances of its having been attended with success, without an artificial anus, and cases are recorded sufficient to encourage the hope of a cure unattended by that distressing complaint.

After hernia has been returned into the abdomen, it is material that a well adapted bandage be applied to prevent its future protrusion; for this purpose I form a compress of soft linen or calico folded to the thickness of nearly half an inch, and of between three and four inches in length, which I place so as to command, by its pressure, the outer and the inner openings, upon this I apply the pad of the truss, which I would recommend to be made flat, as not liable to be moved, but protuberant, about two inches and an half in breadth and four in length, this form and size will preserve a sufficient and

equal pressure on both apertures, and tend to lessen the intervening canal, and keep the compress immoveable, which will increase the pressure.

Mr. Timbrel's proposal that the spring shall not rise above the pelvis, and that it shall be put on circularly, is certainly an improvement, as it keeps the truss fixed; it should be worn uninterruptedly and never taken off, at least for some months, after the cure had been effected.

In the application of a bandage to umbilical hernia, I object to an ivory ball, as recommended by Mr. Cooper, because the intestine being thinly covered, is very liable to injury from the pressure of so hard, heavy, and unyielding a substance.

I also object to its form being conical, and to its size being adapted to that of the opening, as the half nutmeg recommended by Richter, because they are calculated

to widen the aperture by pressing within it—the pressure should be external and the pad light as possible, for which purpose I would advise that it be made of cork, and that there should be no intervening substance, except a compress of linen or calico, and the more thin and flat it is, the less liable it will be to motion.

About two years since, I attended in a case of strangulated hernia of that part, which seemed to have been produced by the irritation of an ill contrived truss.

In September last, I was called to a lady, upwards of seventy years old, in whom the intestine burst at the navel, having been inflamed by an hard pad, the contents were discharged externally, no bad symptoms occurred.

I directed a glyster to be administered daily, and that she should take for diet a

spoonful of gruel frequently; the hernia disappeared, and she recovered.

To conclude, I presume that it is understood that intestinal hernia is that to which the preceding observations particularly apply; mere omental hernia is seldom attended with violent symptoms, however, when it is strangulated, the taxis should be used as in the intestinal, with the view of propelling the blood, and also of shaping it to the size of the aperture; the circumstance of the latter being attended with little comparative danger furnishes a strong argument in favour of the rationale insisted on, namely, that it is the pungency and distension of putrid air, &c. which constitutes the chief feature of the disease, and from which the great danger is to be apprehended, and to the removal of which all our efforts should be directed; and in all cases in which the usual

practice of exerting force has succeeded, it has been by pressing out the air, although the practitioner thought that it was by pushing back the gut.

I have been informed of an instance, in which a surgeon after having laboured until he was fatigued, to reduce (as it is termed) an hernia, rested himself, stripped off his coat and fell to work again, and by main strength effected his purpose. This is a gentleman whom I know to be endowed with the highest professional qualifications, and indeed several surgeons, whose abilities I respect, have told me that they had repeatedly pushed back the hernia by force, and that they knew from experience that it might be used in a very great degree, with advantage.

It being once admitted that pressure proves successful by removing the air, (and that it cannot in any other way, is indis-

putable,) it follows that the manner of conducting it, is an object for our consideration; when the efforts are directed to the replacement of the hernia, they must irritate, and are calculated to burst the intestine, which has happened, and they can succeed but per chance, and contrary to every law of science and to every rule of surgery, whereas in endeavouring to remove the air, no violence is offered to the intestine, and our prospect of success is founded upon every principle of science.

Whoever undertakes to relieve strangulated hernia by the application of the hand, should recall particularly to his recollection, that the part which constitutes the tumor is tubular, and that it is obstructed, and that the disease is remediable only by the removal of the obstruction. These facts and principles are of such moment, that when not attended to, nor acted

upon, error must lead the way, and injury be traced in every step; and as they have been hitherto unobserved, I think it most material to dwell upon them, that they may be characterized with their merited importance.

The learned Boerhaave observes, "in order to discover truth in this manner, by observation and reason, it is requisite we should fix on some principles, whose certainty and effects are *demonstrable* to our senses, which may serve to explain the phenomena of natural bodies, and account for the accidents that arise in them; such only are those which are purely material in the human body, with mechanical and physical experiments; for we are not sensible of any other way of attaining to a true knowledge of the universal and particular affections of bodies."